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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/601,943	06/23/2003	Lieuwe Jan Spreeuwers	NL020579	9507

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PHILIPS INTELLECTUAL PROPERTY & STANDARDS
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EXAMINER	
AZARIAN, SEYED H	

ART UNIT	PAPER NUMBER
2624	

DATE MAILED: 11/03/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/601,943	SPREEUWERS ET AL.	
	Examiner	Art Unit	
	Seyed Azarian	2624	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *23 June 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-13* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-13* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *23 June 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Specification

1. The abstract is objected to because of minor informalities.

Examiner suggests, deleting "Figure 3" at the bottom of the abstract.

Correction is required.

The following guidelines illustrate the preferred layout for the specification of a utility application. These guidelines are suggested for the applicant's use.

As provided in 37 CFR 1.77(b), the specification of a utility application should include the following sections in order. Each of the lettered items should appear in upper case, without underlining or bold type, as a section heading. If no text follows the section heading, the phrase "Not Applicable" should follow the section heading:

(a) BACKGROUND OF THE INVENTION.
  (1) Field of the Invention.
  (2) Description of Related Art including information disclosed under 37 CFR 1.97 and 1.98.
(c) BRIEF SUMMARY OF THE INVENTION.
(d) BRIEF DESCRIPTION OF THE SEVERAL VIEWS OF THE DRAWING(S).
(e) DETAILED DESCRIPTION OF THE INVENTION.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 1-5, are rejected under 35 U.S.C. 102(b) as being anticipated by Jerome Declerck et al (Automatic Registration and Alignment on a Template Of Cardiac Stress and Rest Reoriented SPECT Images).

Regarding claim 1, Declerck discloses method for analyzing perfusion images (see abstract myocardial perfusion studies);

in particular MR perfusion images, of a human or animal organ including the steps of (a) defining at least one contour of the organ (see abstract, the image are resample in a polar geometry to detect edge (contour);

(b) establishing at least one perfusion parameter of a region of interest of said organ within a boundary defined by the at least one contour (page 729 the precise location of the heart wall, also page 735, column 2, section V. to construct "better" images, feature points are extracted in stress and rest images, the stress and rest points are extracted in stress and rest images, the stress and rest points are matched together using an affined transformation "this give the stress-rest registration");

characterized in that steps (a) and (b) are repeated in a series of iterative steps wherein for each subsequent iterative step the definition of the at least one contour in step (a) is varied, and the series of iterative steps is terminated after reaching an opts value for the at least one perfusion parameter in step (b), (page 730, column 1, threshold is performed on the contour image in order to eliminate the lowest and only large connected components are retained, also column 2, the parameters described in the pervious paragraph are adapted in an ad-hoc manner to obtain an almost perfect set of point, with no gaps between edge points and no spurious edges.

Those edges define the shape we use for registration, also section B, the Matching Criterion: a matching function, given a 3-D point M in Image 1 should be the equivalent 3-D point in image 2, and page 731, column 1, paragraph 1, the criterion is the sum of all residual distances extended to S1, a subset of the feature points in image f1, for which the matching is considered as being "reliable").

Regarding claim 2 Declerck discloses method according to claim 1, characterized in that the organ is a heart and the region of interest is the heart's myocardium or a segment thereof (see abstract refer to myocardium).

Regarding claim 3, Declerck discloses method according to claim 2, characterized in that in step (a) the inner contour and/or the outer contour of the heart's myocardium is defined (Fig. 14 and 15, page 734, from top to bottom and left to right anterior wall and inferior wall, also page 736).

Regarding claim 4, Declerck discloses method according to any one of claims 1-3, characterized in that in step (b) the perfusion rate or upslope and/or the time at which the maximum perfusion rate occurs is established (page 733, column 2, paragraph1-2, quantification of scintigraphic myocardial perfusion image are based on some form of polar transformation, the maximal intensity along the radii are reported on the 2-D polar image, just as if the 3-D polar image used for the segmentations was projected on the X, Y with maximal intensity projection, also, page 730, column 1, section C, thresholding is performed on the contour image).

Regarding claim 5, Declerck discloses method according to claim 4, characterized in that in step (b) the myocardium's inner contour is varied and that the series of iterative steps is terminated after reaching an essentially constant value for the perfusion rate and/or said time at

which the maximum perfusion rate occurs, as compared to the perfusion rate's value and/or time in a previous iterative step (see claim 4, also page 733, refer to maximal intensity and comparison of image).

Regarding claims 10, 11, 12 and 13, arguments analogous to those presented for claims 1 2, 3 and 4 are applicable.

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claims 6-13, are rejected under 35 U.S.C. 103(a) as being unpatentable over Jerome Declerck et al (Automatic Registration and Alignment on a Template Of Cardiac Stress and Rest Reoriented SPECT Images) in view of Aiazian (U.S. 7,024,024).

Regarding claim 6, Declerck discloses all limitations of claim 1, but does not explicitly state, "software program for a computer of an apparatus implemented to execute a method for analyzing perfusion images".

On the other hand Aiazian in the same filed of system for imaging and analyzing perfusion (see abstract, analyzing perfusion in selected body regions includes an imaging device

configured to transmit electronic signal to computer-executable software, the software being programmed to translate the electrical signals into electronic data).

Therefore it would have been obvious to one having ordinary skill in the art at the time of the invention was made to modify Declerck automatic registration of cardiac images invention according to the teaching of Aiazian because it provides a system for obtaining and analyzing perfusion images, having computer-executable software to transpose and calculate data into multi-dimensional displays, which are visually perceivable.

Regarding claims 7, 8 and 9, arguments analogous to those presented for claims 2, 3, 4 and 6 are applicable.

Other prior art cited

6. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. patent (6,292,683) to Gupta et al is cited for method and system for tracking motion in MR images.

U.S. patent (5,970,182) to Goris is cited for registration for myocardial images.

U.S. patent (5,647,360) to Bani-Hashemi et al is cited for digital subtraction angiography for 3D diagnostic imaging.

U.S. patent (6,222,948) to Hossack et al is cited for multiple ultrasound image registration system, method and transducer.

U.S. patent (6,447,450) to Olstad is cited for ECG gated ultrasonic image compounding.

U.S. patent (5,850,486) to Maas, III et al is cited for registration of image data.

Contact Information

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Seyed Azarian whose telephone number is (571) 272-7443. The examiner can normally be reached on Monday through Thursday from 6:00 a.m. to 7:30 p.m.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Matthew Bella, can be reached at (571) 272-7778. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application information Retrieval (PAIR) system. Status information for published application may be obtained from either Private PAIR or Public PAIR.
Status information about the PAIR system, see http:// pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Seyed Azarian
Patent Examiner
Group Art Unit 2624
October 18, 2006

Seyed azarian